

ASSIGNMENT-4

Code:

```
#include <WiFi.h>

#include
<PubSubClient.h>

WiFiClient wifiClient;

String data3;

#define ORG "kjbqv"//IBM ORGANITION ID
#define DEVICE_TYPE "ultrasonic"//Device type mentioned in ibm watson IOT
Platform#define DEVICE_ID "ultrasonic"//Device ID mentioned in ibm watson IOT
Platform #define TOKEN "YS-aVyC3O5Nx3iLy?B"

#define speed 0.034

#define led 14

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/shreedharen/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);


const int trigpin=5;
const int echopin=18;

String command;
String data="";

long duration;

float dist;
```

```

void setup()
{
  Serial.begin(115200);
  pinMode(led, OUTPUT);
  pinMode(trigpin,
  OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}

void loop() {
  bool isNearby = dist < 100;
  digitalWrite(led, isNearby);

  publishData();
  delay(500);

  if (!client.loop())
    { mqttConnect();
    }
}

void wifiConnect() {
  Serial.print("Connecting to ");
  Serial.print("Wifi"); WiFi.begin("Wokwi-
  GUEST", "", 6);
  while (WiFi.status() !=
    WL_CONNECTED) { delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}

```

```

void mqttConnect() {
  if (!client.connected()) {
    Serial.print("Reconnecting MQTT client to ");
    Serial.println(server); while (!client.connect(clientId, authMethod,
    token)) { Serial.print(".");
      delay(500);
    }
    initManagedDevice();
    Serial.println();
  }
}

```

```

void initManagedDevice() {
  if (client.subscribe(topic))
  {
    // Serial.println(client.subscribe(topic));
    Serial.println("IBM subscribe to cmd OK");
  } else {
    Serial.println("subscribe to cmd FAILED");
  }
}

```

```

void publishData()
{
  digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin,LOW);
  duration=pulseIn(echopin,HIGH)
  ;dist=duration*speed/2;
  if(dist<100){
    String payload = "{\"Alert Distance\":\"";

```

```

payload +=
dist;payload +=
"}";

Serial.print("\n");
Serial.print("Sending payload:
");Serial.println(payload);
if (client.publish(publishTopic, (char*) payload.c_str()))
    { Serial.println("Publish OK");
    }

}

if(dist>100){
String payload =
"{\"Distance\":\"";payload += dist;
payload += "}";

Serial.print("\n");
Serial.print("Sending payload:
");Serial.println(payload);
if(client.publish(publishTopic, (char*) payload.c_str()))
    { Serial.println("Publish OK");
    }else {
        Serial.println("Publish FAILED");
    }

}

}

```

Output:



